horizontal extent of an area of the test objects to be inspected, and a detector having a small field of view in relation to the horizontal extent of the area of the test objects to be inspected. The process includes fixedly mounting the at least one test object, and moving the X-ray beam tube and the detector within an X-Y plane, thereby inspecting an entire area of the at least one test object.

B5 According to a feature of the invention, the process can also include moving the X-ray beam tube and the detector parallel to each other. Further, the process can include moving the X-ray beam tube and the detector together in a same direction; in a same direction; or in opposite directions.

In accordance with yet another feature of the invention, the process can include moving the X-ray beam tube and the detector parallel to the at least one test object.---;

line 4, insert the following:

---BRIEF DESCRIPTION OF THE DRAWINGS---;

line 9, change "invention." to ---invention; and---;

line 13, insert the following:

---DETAILED DESCRIPTION OF THE PRESENT INVENTION---;

line 26, change "positioned stationarily" to ---fixedly positioned (i.e., stationarily); and

line 27, delete "any more".

Page 11, line 4, delete "means of"; and

line 7, change "that in" to ---that, in---.

Page 12, line 13, delete "means of"; and

line 21, delete "means of".

IN THE CLAIMS

Please cancel claims 1 - 13 without prejudice or disclaimer.

Please enter new claims 14 - 37 for consideration by the Examiner:

B6

14. A device for inspecting at least one test object comprising:

an X-ray beam tube having a small field of view in relation to a horizontal extent of an area of the at least one test object to be inspected; and

a detector having a small field of view in relation to the horizontal extent of the area of the at least one test object to be inspected,

wherein the at least one test object is stationary during the inspection, and said X-ray beam tube and said detector are moveably arranged within an X-Y plane for inspecting an entire area of the at least one test object.

15. The device in accordance with claim 14, further comprising a carrier adapted to be fixedly mounted during the inspection of the at least one test object,

wherein said carrier is coupled to the at least one test object during the inspection.

16. The device in accordance with claim 14, further comprising a computing device being coupled connected to said detector.

17. The device in accordance with claim 16, further comprising an analysis unit being connected to said computing device.

18. The device in accordance with claim 14, wherein said X-ray beam tube comprises a microfocus tube with a focal spot diameter of 10 to 40 µm.

19. The device in accordance with claim 14, wherein said detector comprises a CCD chip arranged on a taper.

20. The device in accordance with claim 14, wherein said X-ray beam tube and said detector are adapted for two-dimensional inspection of the test object.

21. The device in accordance with claim 20, wherein said X-ray beam tube and said detector are adapted for three-dimensional inspection of the at least one test object.

22. The device in accordance with claim 14, wherein the at least one test object comprises at least one of a printed circuit board and a loaded printed board assembly.

23. The device in accordance with claim 14, wherein said device is adapted for X-ray

inspection of soldered joints on at least one of printed circuit boards and loaded printed board assemblies.

24. The device in accordance with claim 14, wherein said device is adapted for fully automated 100% X-ray inspection of soldered joints on at least one of printed circuit boards and loaded printed board assemblies.

25. The device in accordance with claim 14, further comprising an analysis unit coupled to said detector, said analysis unit including a learning mode,

wherein, in said learning mode, a set of testing algorithms is transmitted to the analysis unit, and the algorithms are used to generate a characteristic vector for an individual soldered joint that is optimized to statistically represent a defect-free soldered joint,

B6

wherein the characteristic vector is optimized by analyzing vectors of a same soldered joint on other at least one of printed circuit boards and loaded printed board assemblies.

26. The device in accordance with claim 25, said analysis unit further including a testing mode,

wherein, in said testing mode, a pad image buffer, the set of testing algorithms, and the learned characteristic vectors with tolerances are transmitted to said analysis unit, and, in order to test a soldered joint, a correlation between the learned characteristic vectors with tolerances and the soldered joint under test is determined.

27. The device in accordance with claim 14, wherein said X-ray beam tube and said detector are adapted to move parallel to each other.

28. The device in accordance with claim 27, wherein said X-ray beam tube and said detector are adapted to move together in a same direction.

29. The device in accordance with claim 27, wherein said X-ray beam tube and said detector are adapted to move in a same direction.

30. The device in accordance with claim 27, wherein said X-ray beam tube and said detector are adapted to move in opposite directions.